UNC Charlotte, Department of Electrical and Computer Engineering
ECGR 4101/5101, Fall 2013, Homework #2
Due: 9/4/2013 at the beginning of class (20 points)

Assignment should be turned in as a hardcopy.

1. Represent the decimal number 2000 in hexadecimal notation. Show your work (do not use a calculator). (1 pt)
2. Represent the decimal number 2000 in binary notation. Show your work (do not use a calculator). (1 pt)
3. Represent the hexadecimal number 0x25B in decimal notation. Show your work (do not use a calculator). (1 pt)
4. Write the C code to set port 5, bits 0 through 3 to be output pins, and port 5, bits 4 through 7 to be input pins. (1 pt)
5. Write the C code to read the data on port 5, bits 4 through 7 and write the data you just read to port 5, bits 0 through 3. (1 pt)
6. Is it good design to connect a motor directly to the output pin of a microcontroller? Why or why not? (2 pts)
7. How many volts per ADC step are in a system with an ADC resolution of 12 bits and a reference voltage of 4 volts? (2 pts)
8. An analog input has a voltage of 1.999. What will the ADC return if it has 10 bits of resolution and a reference voltage of 3.3 volts? (2 pts)
9. Show the professor's last name in hex format (using the correct ASCII table). The answer should be: 0xUUVVWWXXYYZZ, where the letters are from the table. (1 pt)
10. Jim Turley wrote the article "The Two Percent Solution" in 2002. Mr. Turley believed processors make up only a small percentage of semiconductor volume yet generate most of the revenue. That was eleven years ago. Has anything changed since then? In up to ten lines of correct English, state why you agree or disagree with him, **and cite one current article or website to justify your points**. (8 pts)